ABSTRACT

In the case that at the time of generation of a
pre-fetch request following a read request from one of
the processors the data stored in other cache devices
cannot be read unless its state tag is changed, a cache
controller carries out weak read operation for causing
failure in the pre-fetch request as a fetch protocol.
Alternatively, the cache controller reads pre-fetch
data without changing state tags of other cache devices,
sets a weak read state (W), and stores the data. The
data in the weak read state (W) is invalided by
synchronization operation of memory consistency by
software. Furthermore, the pre-fetch data is stored in
a passive preservation mode in the present cache device.
Even if the pre-fetch data corresponds to a read request
from some other cache device, the preservation of the
data is not informed to the other cache device.